CALIFORNIA
AND
WESTERN MEDICINE

VOLUME XXXIV MAY, 1931 No. 5

A CANCER PROGRAM FOR CALIFORNIA*

LYELL C. KINNEY, M. D.
San Diego

THE subject of cancer therapy is chosen for presentation at this time because of the increasing importance which malignant disease has acquired in the relations of the medical profession with the public. Public interest is focused upon this problem, and during the past year it has been a subject of quite constant discussion among medical men. The treatment of cancer is especially important to the California medical profession because of the rapidly increasing mortality rate from that disease in this state. The death rate from cancer in California has increased 50 per cent since 1918, and it has doubled since 1906. This is especially interesting in view of the rapid decrease in the California mortality rate of tuberculosis which has fallen in almost the same proportion in which the mortality rate of cancer has risen. The death rate from cancer in California is almost 30 per cent higher than the average death rate in the United States, and it is 80 per cent higher than that of Canada. The high and increasing cancer death rate in California is due largely to the influx of patients with chronic diseases or of advanced age. It is also due to more accurate diagnosis. However, the fact remains that we are dealing with a steadily increasing number of cancer patients in our State.

THE RESPONSIBILITY OF THE MEDICAL PROFESSION

The responsibility of the medical profession in this problem is also greatly increased by the unprecedented publicity that has recently been given to cancer. The public has become cancer-conscious. It realizes the dangers lurking in cancer and is seeking help earlier than ever before. This change in the attitude of the public makes it incumbent upon us to provide adequate means of diagnosis and treatment of cancer to meet this increased responsibility.

The cure of cancer depends upon early diagnosis and immediate treatment. Early localized, accessible cancer is curable. The percentage of five-year cures in those patients in whom the stage of glandular involvement or metastasis has not been reached varies from 50 to 90 per cent, depending upon the region involved. These are proven, possible results, as shown in the work of experienced men in the largest and most adequately equipped institutions, but they are results obtained only in the early localized stage of the disease.

A survey of cancer patients seeking aid shows that only a very small percentage comes in the early stage of the disease when cure may be possible. At least 25 per cent of the patients who have carcinoma of the breast are inoperable and 60 per cent of the patients with cancer of the uterus, stomach, thyroid, and rectum are in too advanced a stage to anticipate a cure. This percentage reaches 85 per cent in the cases of cancer of the paranasal sinuses. It has been estimated that in the large New York hospitals at least 75 per cent of the cancer patients are first seen in an advanced stage.

When we summarize the actual results of our present treatment of cancer, even with modern methods used in the most skilled manner, the five-year cures among the treated patients make up only 25 per cent of the total number. This obtains in the operated patients who have carcinoma of the breast and stomach, in radiated patients with carcinoma of the cervix, and in patients with intra-oral cancer in which a combination of the two methods is used. When we consider these results of treatment in comparison with the high percentage of patients having advanced inoperable carcinoma, we find that less than 10 per cent of the patients presenting themselves for treatment to our best equipped hospitals have a life probability beyond the five-year period.

The public, however, does not judge the success of the treatment of cancer by these results from the few great clinics of the world. Its opinion is formed from the failures it observes in the local communities. Most cancer is treated by surgeons whose experience is limited to a very few patients a year. The consequent operative mortality is high and the actual cure of cancer is thus not comparable to the better results which we have described. It is no wonder that the public looks upon cancer as a hopelessly incurable disease and dreads any operative attack.

We must face the fact that, although early accessible cancer is curable, only from five to ten per cent of our cancer patients are salvaged for five extra years of life and that the mortality from cancer is steadily increasing. The obvious answer is that the cancer patient must be reached by adequate, early treatment in skilled and experienced hands. How to accomplish this is one of the outstanding problems before the medical profession.

* President's address, sixtieth annual session of the California Medical Association, April 26-30, 1931, at San Francisco.

PREVENTION OF CANCER

It is not an impractical or Utopian idea to believe that a large number of the cases of cancer can be prevented. Cancer of the skin almost invariably arises in lesions which can be readily removed. The same is true of cancer of the lip, tongue, and the anterior intra-oral region. The lump or ulcer that does not heal immediately is recognized by the patient in its early stages while it is still resectable.

Cancer of the cervix, which represents one-quarter of all the cases of cancer in women, is almost wholly preventable. The preëxisting laceration, erosion, or infection can be promptly eliminated by repair, amputation or cautery, and cancer of the cervix practically never occurs in those patients in whom these lesions have been successfully treated. Such a program involves meticulous repair after delivery and also involves periodic examinations, but the reward of preventing one-fourth of the cases of cancer in women is worth the cost of any amount of education required for its attainment on the part of both the public and the medical profession. This alone is a worthy objective for the medical profession in facing the cancer problem.

The less frequent cancer of the gall-bladder and thyroid is equally preventable. Ninety-four per cent of the cases of carcinoma of the gall-bladder are associated with gall-stones, and 92 per cent of the patients give a long history of gall-bladder symptoms or of repeated attacks of gall-bladder colic. Carcinoma of the thyroid gland develops in preëxisting adenomata which are readily recognized and easily removed in from 80 to 90 per cent of the patients.

The greatest service rendered mankind by the medical profession in the past fifty years has been the prevention of infectious diseases. An equal service is possible in the prevention of cancer, but it cannot be accomplished by the wholesale methods that obtained with yellow fever, typhoid fever, or diphtheria. The prevention of cancer requires the active interest of the individual patient and the alert attention of the individual physician. Given both, there would be a prompt reduction in the incidence and mortality rate of cancer.

EARLY DIAGNOSIS

We have attributed the mortality of cancer largely to the fact that patients do not seek medical advice immediately. This factor is losing its importance through the efforts of the American Society for the Control of Cancer and other widespread publicity. The public is being educated to the significance of the lump, the ulcer and the atypical bleeding, and as we continue this education the public will expect and demand early diagnosis followed by immediate adequate treatment. The responsibility for cancer mortality is coming to rest largely upon the medical profession—upon its ability to recognize early cancer and to treat it immediately and adequately. We must justify our propaganda for periodic examination and early advice.

Early cancer is one of the most difficult lesions to diagnose. The first symptoms are trivial and by the time the diagnosis is obvious the cancer is usually no longer early or curable. There is no excuse for treating lesions of the lip or oral cavity with silver, cautery, or radiation without diagnosing the lesion, and diagnosis most frequently demands excision of the lesion and microscopic examination. A few days of nonirritating asepsis are justifiable while searching for and removing possible etiological factors, but beyond that a diagnosis as to whether the lesion is benign or malignant is imperative in every case if we expect to lower cancer mortality. Lesions of the rectum carry a similar responsibility. Ninety per cent of the cancer in this region lies within reach of the examining finger, and all cases admit of easy biopsy through the proctoscope, yet nearly 60 per cent of these cases escape early recognition because of failure to make the examination or because symptoms are attributed to an innocent hemorrhoid or fissure.

Fortunately, patients with carcinoma of the breast are reporting for examination earlier than in the past. The early diagnosis, in the majority of patients, can be based on a lump which is fixed in the surrounding breast tissue; but there are still 25 per cent of the patients who do not permit a preoperative diagnosis. The only safe opinion must rest upon a microscopic diagnosis of a frozen section of the excised lump, and the surgeon must be prepared for immediate radical surgery if the diagnosis is one of malignancy. To wait for dimpling of the skin, retraction of the nipple, or involvement of the axillary glands is to throw away deliberately the possibility of a cure.

TREATMENT OF EARLY CANCER

Not only is the early recognition of malignancy essential. Adequate treatment must be immediate. The period of time during which cancer is in a curable stage is short. In many types of lesions it consists of only a few weeks; in the majority of cases, of not more than six months. To wait for classical symptoms or to temporize with expectant treatment is to squander the patient's chance to live.

We must remember that the first method of attack usually determines the final results. If a mouth lesion is treated by superficial cautery or "a little radium," if a suspicious lesion of the cervix is subjected to tampons, if a breast tumor is treated with hot compresses or massage, or if a carcinoma of the stomach is treated as an ulcer, the patient is robbed of the curable stage of his disease. After such a primary attack and delay the mistake will not be remedied by referring the patient to the most skillful surgeon or by taking him to the great cancer hospital. They cannot return the patient to the stage of curability. Time, and usually a very short time, determines whether or not the patient can be cured by any known method or by any operator. The fate of the patient lies with the physician who first sees him.

The adequate treatment of early cancer is radical removal of the growth. With few exceptions

this means radical surgery. Early skin cancer can be successfully treated by the x-ray or radium, and cancer of the cervix responds to proper radiation with a higher percentage of cures than can be obtained by other methods. However, even in these patients good surgery is better than indifferent or insufficient radiation. Proper radiation demands skill and experience equal to that of good surgery. In cases of cancer of the mouth the addition of radiation to surgery will materially increase the number of cures. In cases of seminoma of the testicle and of papillary carcinoma of the ovary it is essential that surgery be followed by x-ray therapy. But early cancer is primarily a surgical problem. There is no easy method of cure! No drug or hypodermic medication will prevent the growth of cancer! The use of any other therapy in order to avoid surgery or to delay surgical removal results in inexcusable waste of human life.

It is in the case of early cancer that the physician faces his greatest responsibility. The patient with the advanced carcinoma he can comfort, but seldom cure. The early case is curable, and he can prevent the disease from becoming advanced and incurable. The general practitioner usually sees the patient first, and the control of cancer rests largely upon him. He sees many cancer patients early, and as popular education progresses the general practitioner will see a much larger percentage of such, and while the patients are still in the curable stage. The future mortality rate of cancer will depend first upon the promptness of the general practitioner's recognition of the disease and his demand for immediate treatment, and secondly, upon the skill and experience of the surgeon and radiologist who see the patient in consultation with him.

PALLIATIVE TREATMENT

It is estimated that there are fifteen thousand patients in California who have cancer advanced beyond the probability of cure. This group of patients presents a much more complex and difficult problem than does the early, curable group, and the two distinct indications for treatment are prolongation of life and, what is more important, freedom from suffering during the years or months ahead. There is a tendency on the part of both the patient and his physician to demand radical treatment after the primary delay when it is too late. We err as much in attempting to do the impossible with surgery and radiation in late cancer as in temporizing without them in early cancer. In the treatment of these late patients we must determine clearly what constitutes surgical operability, and we must limit our attack with radiation to palliation, taking care not to increase rather than decrease later symptoms. There comes a time when radical surgery and destructive radiation are no longer indicated; when, on the contrary, they will shorten life and cause increased suffering.

When used with proper restraint and appreciation of its limitations, the palliative treatment of cancer prevents untold suffering and occasionally prolongs life. In cases of cancer of the gastro-intestinal tract, palliation must depend upon surgery alone; side-tracking operations when the growth is not resectable will remove obstructive symptoms and keep the patient comfortable. Radiation has little favorable effect upon these patients. In cases of carcinoma of the rectum, a colostomy followed by the implantation of radium into the growth, together with external radiation, gives a large number of favorable symptomatic results. Carcinoma of the bladder frequently becomes symptomless with the use of x-ray therapy or the implantation of radium, if the growth is not too extensive. Carcinoma of the thyroid is well controlled by radiation with or without surgery, and such cases frequently do well until overcome by distant metastasis.

Carcinoma of the breast usually requires both surgery and radiation for its best palliative treatment. In cases in which the extension is limited to the axillary glands, radical excision, followed by postoperative x-ray therapy, gives the best final results. In cases in which the extension has reached the supraclavicular glands or more distant regions, radical excision is contraindicated; but radiation, with or without amputation of the breast, will add greatly to the comfort if not to the prolongation of life of the patient. Recurrences following surgery for carcinoma of the breast are inoperable unless distinctly localized and freely movable. But recurrences and bone metastases frequently yield to radiation.

Carcinoma of the cervix, unless far advanced, usually admits of local healing and months of freedom from symptoms, through the use of radium and x-ray therapy. Even in the frozen pelvis, radium will frequently stop the bleeding if judiciously applied. The palliation thus secured in these types of carcinoma patients is invaluable even though life is not prolonged.

LIMITATIONS IN DIAGNOSIS AND THERAPY

While emphasizing the importance of early diagnosis we must recognize the fact that in a large percentage of patients abdominal cancer does not lend itself to early recognition because of the lack of serious or characteristic symptoms in the early course of the disease. Our California statistics show that over 50 per cent of cancers in the male are found in the gastro-intestinal tract, mesentery, liver, or pancreas, and that over 35 per cent of cancers in women occur in the same organs. It is not probable that these patients will learn to seek advice earlier than they do now. The accuracy of diagnosis in those patients who do seek advice may be materially increased by the search for cancer in all patients past the third decade. However, we may not expect a great decrease in the total cancer mortality in this group with our present methods of diagnosis and treatment.

We must also recognize the fact that there is a large field of cancer in which our present methods of treatment are futile. Cancer of the lungs, liver, and pancreas are beyond our present reach; cancer of the esophagus has involved the

entire thickness of the esophageal wall by the time it is discovered; extensions into pelvic and retroperitoneal glands or into retroperitoneal tissues cannot be reached; the late sloughing infected cancer in any location offers very little hope even for palliation.

EDUCATION OF THE PROFESSION

This sketchy survey of the possible cure and palliation of cancer serves to point out the responsibility which rests with the medical profession. The first burden of that responsibility rests on the education of the family physician. He must be taught to protect his patients from cancer by the treatment of precancerous lesions. He must be taught to recognize the importance of suspicious lesions and suspicious symptoms. He must be led to realize the imperative need for immediate, accurate diagnosis and prompt treatment. The cure of cancer lies in the eradication of the suspicious lesion, the early lesion before it becomes typical or obvious.

NEEDS OF CALIFORNIA IN EARLY TREATMENT

The second responsibility is the provision of means of accurate diagnosis and proper treatment that shall be accessible to the family physicians of California. The diagnosis and treatment of cancer is far too complex a problem to be considered the function of the individual physician or of any one specialist. Diagnosis involves a large field of technical procedures, and the program of therapy requires the combined judgment of the internist, the surgeon, the pathologist, and radiologist. A pathologic diagnosis of carcinoma or sarcoma is no longer adequate. The pathologist must consider also the type of cell development, the age of the patient, the reaction of the host, the rapidity of growth, and the probable radiosensitivity of the part involved. Knowledge of all of these conditions is essential to intelligent therapy. Likewise, the choice and method of treatment requires wide skill and experience in both surgery and radiation. Thus the proper handling of cancer is not an individual problem for the individual physician; it is a study problem for a group of physicians.

The medical profession in France has shown the best judgment in connection with this problem. Cancer hospitals of from fifty to one hundred beds, supported partially by the government and partially by private funds, have been scattered in the university towns throughout France. Preparation was made for the early diagnosis and proper treatment of cancer before starting any campaign of popular education, so that the French profession was then able to justify its propaganda for early examination.

A large number of special cancer hospitals in California is neither desirable nor practical at this time. But the question of organization of cancer groups in at least one hospital in every large city demands our immediate attention and is a possibility which can be promptly realized. Without great expense, members of the various specialties having definite interest and experience in cancer may be organized for group work, which will greatly increase accuracy in diagnosis and efficiency in treatment. The establishment of such a group in a general hospital will make available the consultation required by the family physician and will hasten his education in the recognition of early or suspicious cancer. Such a cancer group is an immediate possibility in every large city. The Society for the Control of Cancer or the Committee on Malignant Disease of the American College of Surgeons will conduct a survey of the local situation whenever requested by your County Medical Society, and will assist in determining the proper program and will direct in its organization.

The next immediate step in California in furnishing accurate diagnosis and treatment should be the establishment of a large cancer institute in each of our metropolitan cities. The city and county of San Francisco is preparing to build such an institute in the near future. Every possible effort should be made by the profession to obtain a similar cancer institute in Los Angeles. These two institutes, with the coöperation of the adjacent medical schools, should contact and correlate the work of all the cancer groups in the surrounding cities. The facilities of each institute should be open to the outlying groups to assist in pathologic and clinical diagnosis, to standardize radiologic equipment and to furnish radium emanation at cost. In these institutes there would be opportunity for the observation and experience necessary for training the members of the local cancer groups. With two such cancer institutes coöperating with cancer groups in the general hospitals in each county, the profession could bring to the people of California the early care which is the major problem in cancer therapy.

CANCER RESEARCH

The final responsibility of the profession lies in the field of research. When we consider that to 75 per cent of our present cancer patients, we can offer palliation only, and that to a considerable number we can offer nothing, either in the way of cure or palliation, we realize that research is of paramount importance. The medical profession should encourage and support all lines of scientific research that point to the control of cancer. Little can be expected from new or more radical methods in surgery, although there is a large field for more experience and better surgery. There have been tremendous advances in radiation therapy in the past fifteen years, and these will doubtless continue; but the decrease in cancer mortality and added palliation from radiology must come as a result of its early application and not from new methods of treatment or technique.

Proper research in the field of cancer in California demands the organization of these two large cancer institutes which would have the cooperation of our four medical schools. Our future research in cancer should be conducted under the guidance and with the assistance of these two institutes, which will have at their com-

mand a large concentration of all types of patients, as well as the clinical, pathological, and biochemical departments of the medical schools. This will assure correlation of research with all existing methods of treatnent, and will give opportunity for proper evaluation of results and determination of patients for whom new methods are indicated.

The present trend of cancer research is toward the field of biochemistry. The work with heavy metals at the tumor clinic of the Jefferson Hospital illustrates the efforts in this direction. Another valuable research is that at the Lankenau Hospital on the relation of the sulphydryl radical to cell division. Experimental work on growth restraint and palliation from various endocrine extracts is being pursued both in this country and in Italy. All of these methods should receive a final determination of their value, but they must be considered in the early experimental stage at the present time.

CANCER A PUBLIC HEALTH PROBLEM

There are medical economic considerations which make it important for the profession in California to give serious thought to cancer therapy. Cancer is rapidly coming to be considered a public health problem. Because of the large mortality, which is rapidly increasing in spite of our popular education and improved methods of therapy, many public health authorities consider that the cancer problem is one which should be subject to state control. In 1929 the legislature of Massachusetts directed the State Board of Health to establish cancer clinics throughout the state, and to establish a cancer hospital which should be open to the entire population. This action was taken with little regard to the will or desire of the medical profession. Fortunately the program was developed with the advice and help of the leaders in medicine in Massachusetts, and the clinics were located only with the consent and active coöperation of the county medical society in each locality. The program has proven of immeasurable value to the medical profession as well as to the public. Nevertheless this is state medicine. However, other states will follow this lead. Such a program of state development and state control will undoubtedly be proposed in California. It behooves the California Medical Association and the county medical societies to anticipate such action with serious, active consideration. We should plan well our cancer program so that we may lead and direct legislation in this work as we hope to do along other medical economic lines.

SUMMARY

Summing up this presentation, may I not say that cancer therapy is a challenge to the medical profession in California.

The responsibility of future cancer mortality statistics rests primarily upon the education of the general practitioner and the family physician. With him lies the possibility of the prevention of a large percentage of cases of cancer, and it is he who must detect the suspicious lesion or symptom of early cancer while it is still curable.

We must make early diagnosis and adequate treatment accessible throughout the state. To accomplish this, the California profession should solidly support the program of the American College of Surgeons as outlined by its Committee on Malignant Disease.

We should immediately provide at least two large cancer institutes, equipped for treatment, research, and education of the profession. These two institutes should have the active assistance of the related departments in our four medical schools and should coöperate with the cancer groups in every large center of the state.

We should be prepared to advise and direct legislation and public health activity in the prevention and treatment of cancer, so that they may serve the best interests of the public as well as the medical profession.

Let us tell the public the truth about cancer—that the only hope of cure lies in the early recognition and immediate destruction of the growth. This will continue to be the truth whatever the outcome of our future research.

Let us recognize the fact that cancer diagnosis and cancer treatment are group problems and are no longer the function of the individual physician, or of any one specialty.

Let us organize cancer groups throughout California that we may bring to the public early, accurate diagnosis and efficient treatment.

While we strive for palliation in the thousands of patients who have advanced cancer, let us place equal emphasis upon the education of the medical profession concerning early diagnosis and treatment and upon scientific cancer research. Then the mortality rate of cancer in California will cease to increase and will begin to decrease even as the mortality rate has decreased in tuberculosis.

510 Medico-Dental Building.

SUSCEPTIBILITY TO TUMORS—SOME OF THE FACTORS GOVERNING THE SAME*

By CHARLES L. CONNOR, M. D.
San Francisco

DISCUSSION *by Howard A. Ball, M. D., Los Angeles; H. J. Ullmann, M. D., Santa Barbara; W. T. Cummins, M. D., San Francisco.*

IT is well known to those working with experimental tumors that certain factors govern transplantation or inoculation from one animal to another. I say transplantation *or* inoculation, because tumors may in general be divided into transplantable and inoculable tumors. The first require living cells for successful transmission to host animals; the second may be transmitted by the filtered juice or extract, or by the dried, presumably dead, tissue. There are certain laws, however, which govern both types in much the

* From the department of pathology, University of California Medical School.

* Read before the Pathology Section of the California Medical Association at the fifty-ninth annual session at Del Monte, April 28 to May 1, 1930.